WHAT IS CLAIMED IS:

1. A process for controlling afterburn in a catalyst regenerator of a fluidized catalytic cracking unit, said regenerator comprising a catalyst bed and a dilute phase, said dilute phase positioned above said catalyst bed and below an inlet to a solid-gas separator, said dilute phase comprising (a) a first zone comprising oxygen, wherein combustion in said first zone is fuel-limited; (b) a second zone comprising carbon monoxide, wherein combustion in said second zone is oxygen-limited, said process comprising the step of injecting an effective amount of steam into said dilute phase to substantially mix said gases from said first zone and said second zone so that a substantial portion of the carbon monoxide combusts before passing through the inlet to the solid-gas separator.

2. The process according to claim 1 wherein said secondary gas is radially injected into said dilute phase.

3. The process according to claim 1 wherein said secondary gas is tangentially injected into said dilute phase.

4. The process according to claim 1 wherein an oxygen-containing gas is also injected into said dilute phase in an amount sufficient to enhance combustion of CO.

5. The process according to claim 1 wherein said steam is injected into said first zone, said second zone, or both.

6. The process according to claim 1 wherein said steam is injected into said dilute phase at a position at least about 3 feet above an upper level of said catalyst bed.

7. The process according to claim 1 wherein said steam is injected into said dilute phase at a position between about 3 and about 9 feet above the upper level of said catalyst bed.

8. The process according to claim 1 wherein at least about 50 mole % of the carbon monoxide combusts before passing through the inlet to the solid-gas separator.

9. The process according to claim 1 wherein at least about 90 mole % of the carbon monoxide combusts before passing through the inlet to the solid-gas separator.

10. The process according to claim 1 wherein the first zone is positioned above a regenerated catalyst outlet of the regenerator.

11. The process according to claim 1 wherein the second zone is positioned above a spent catalyst inlet to the regenerator.

12. A process for regenerating spent catalyst from the reaction zone of a fluidized catalytic cracking reactor comprising the steps of:

(a) passing spent catalyst from the reaction zone of a fluid catalytic cracking reactor to a regenerator, said regenerator having therein a fluidized catalyst bed and a dilute phase zone above said catalyst bed, said dilute phase zone comprising the gases carbon monoxide and oxygen;

(b) contacting the spent catalyst with a gas comprising oxygen to produce a regenerated catalyst;

(c) passing said regenerated catalyst to the reaction zone; and,

(d) injecting an effective amount of steam to mix the gases present in the dilute phase zone so that a substantial portion of the carbon monoxide present in the dilute phase zone combusts.

13. The process according to claim 12 wherein said secondary gas is radially injected into said dilute phase.

14. The process according to claim 12 wherein said secondary gas is tangentially injected into said dilute phase.

15. The process according to claim 12 wherein an oxygen-containing gas is also injected into said dilute phase along with said steam.

16. The process according to claim 12 wherein said steam is injected into said first zone, said second zone, or both.

17. The process according to claim 12 wherein said steam is injected into said dilute phase at a position at least about 3 feet above an upper level of said catalyst bed.

18. The process according to claim 12 wherein said steam is injected into said dilute phase at a position between about 3 and about 9 feet above the upper level of said catalyst bed.

19. The process according to claim 12 wherein at least about 50 mole % of the carbon monoxide combusts before passing through the inlet to the solid-gas separator.

20. The process according to claim 12 wherein at least about 90 mole % of the carbon monoxide combusts before passing through the inlet to the solid-gas separator.

21. A process for controlling afterburn in a catalyst regenerator of a fluidized catalytic cracking unit, said regenerator adapted to operate under partial burn conditions, said regenerator comprising a catalyst bed and a dilute phase, said dilute phase positioned above said catalyst bed and below an inlet to a solid-gas separator, said dilute phase comprising (a) a first zone comprising oxygen, wherein combustion in said first zone is fuel-limited; (b) a second zone comprising carbon monoxide, wherein combustion in said second zone is oxygen-limited, said process comprising the step of using steam to substantially mix said gases from said first zone and said second zone so that a substantial portion of the oxygen present in said dilute phase reacts with carbon monoxide before passing through the inlet to the solid-gas separator.

22. The process according to claim 21 wherein at least about 90 mole % of the oxygen reacts with carbon monoxide before passing through the inlet to the solid-gas separator.

23. The process according to claim 21 wherein at least about 2 mole % CO remains uncombusted.

24. The process according to claim 21 wherein about 2 to about 10 mole % CO remains uncombusted.